



# THE HANFORD SITE

## **Proposed Permit Modification in Support of the 200 Area Effluent Treatment Facility Secondary Waste Storage and Loadout**

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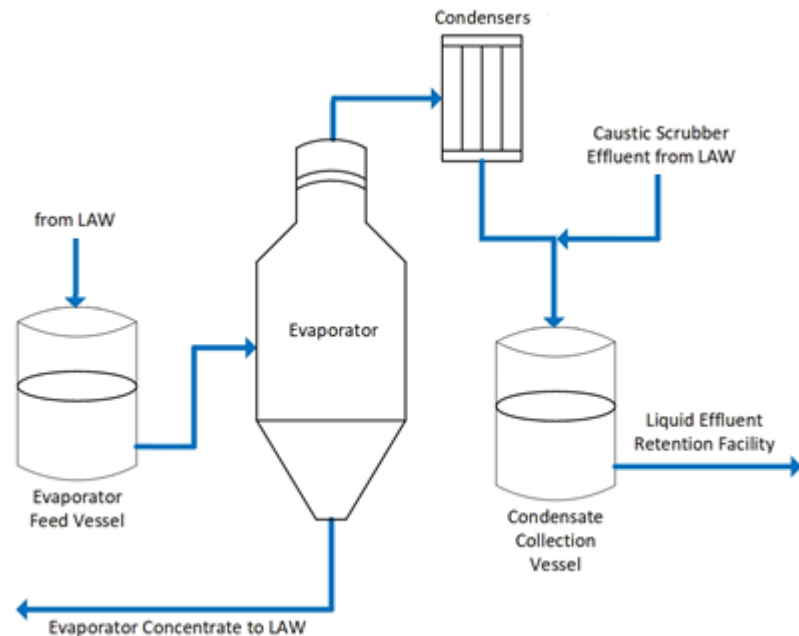
*May 10, 2022*

# Direct-Feed Low-Activity Waste Configuration



# Direct-Feed Low-Activity Waste Configuration (cont.)

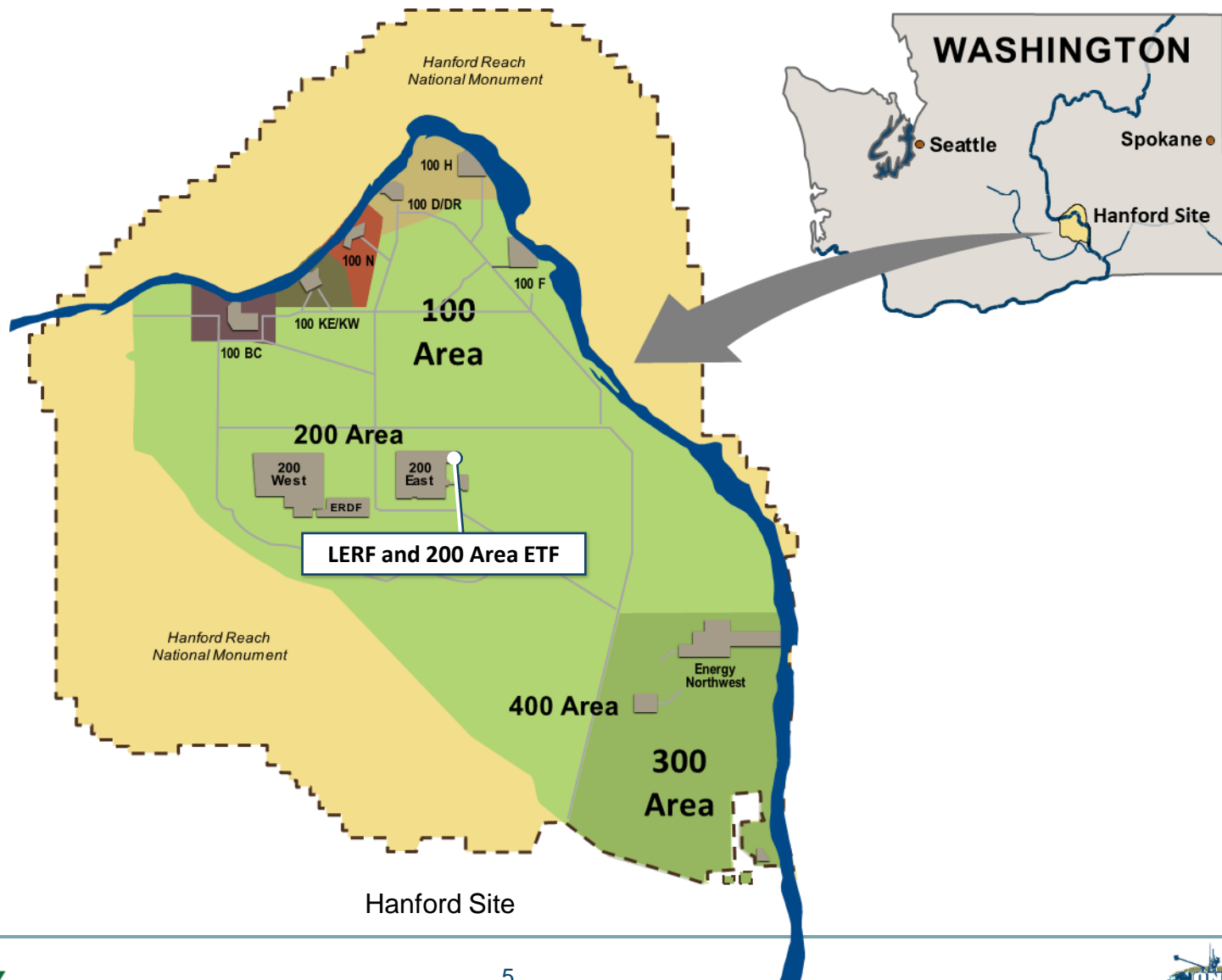
- Secondary liquid waste will be created during the vitrification of low-activity waste in the Waste Treatment and Immobilization Plant (WTP)
- The liquid waste will be evaporated in the Effluent Management Facility (EMF)
- The Liquid Effluent Retention Facility (LERF) and the 200 Area Effluent Treatment Facility (ETF) will be used to manage and treat the EMF evaporator condensate

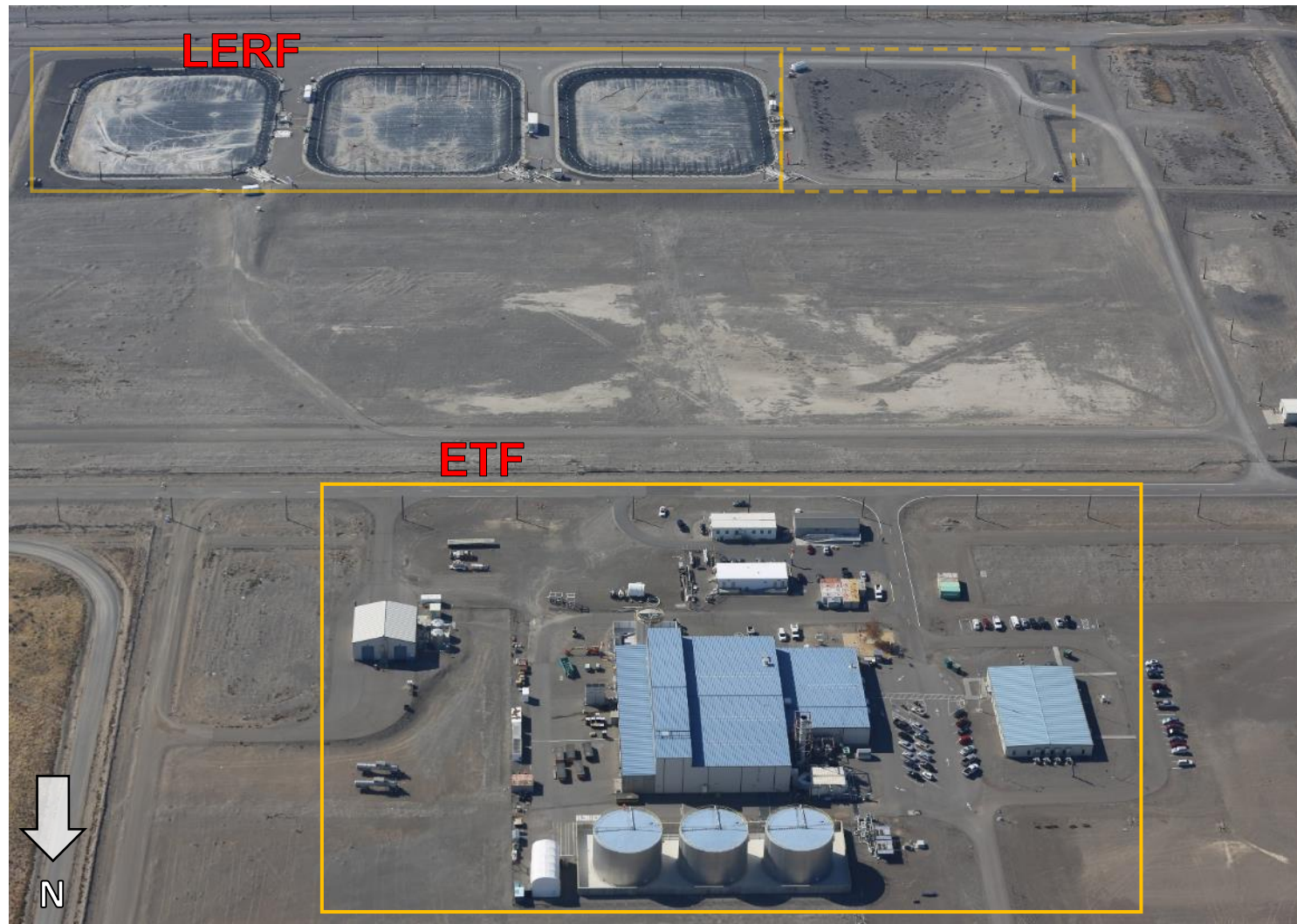


Effluent Management Facility Process Flow Overview

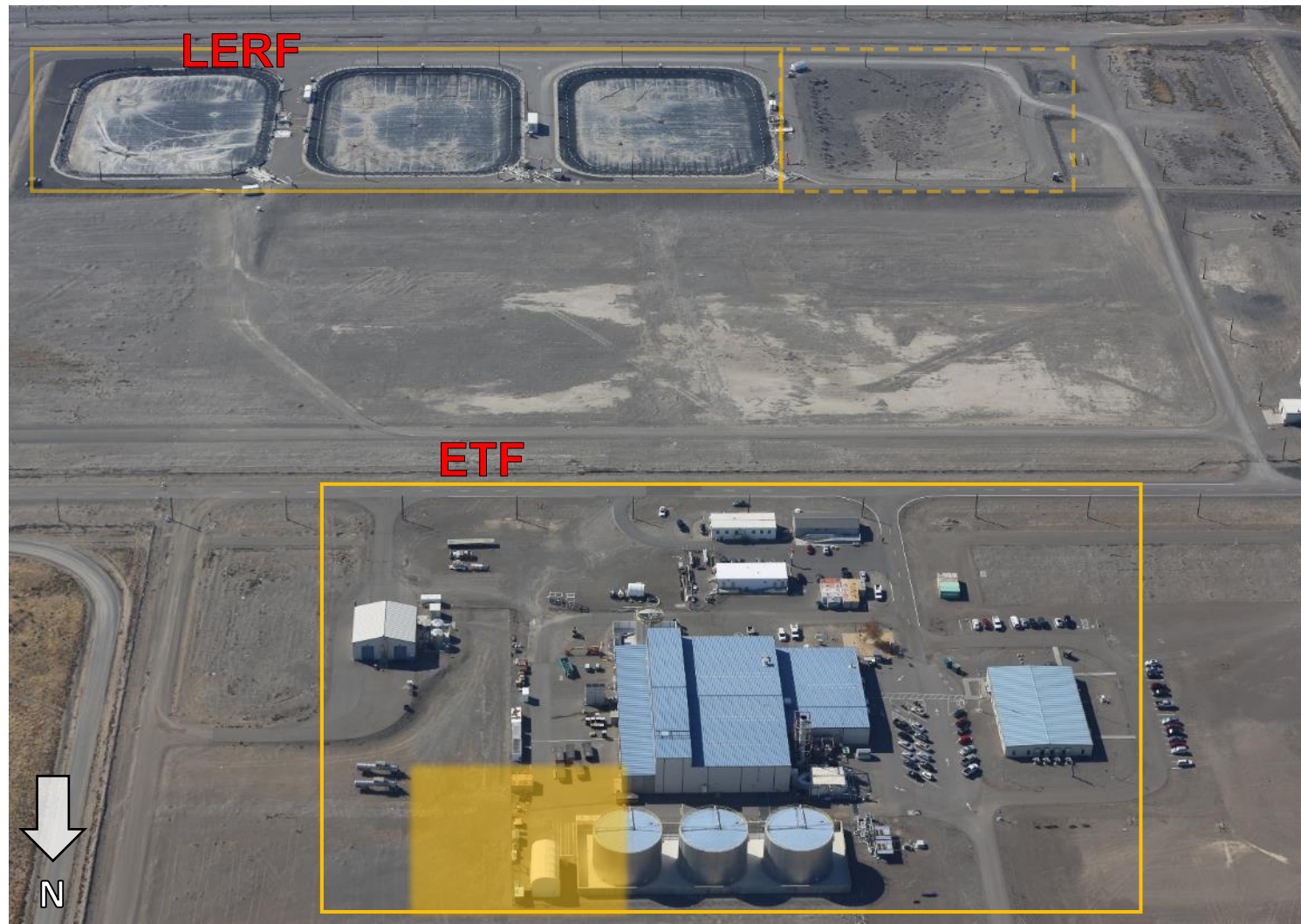


- The Hanford *Resource Conservation and Recovery Act (RCRA)* Permit governs dangerous waste treatment, storage and disposal at the Hanford Site
- The Washington State Department of Ecology (the regulator) issued the current Hanford RCRA permit (Revision 8C)
- The permittees (DOE and contractor Washington River Protection Solutions) are proposing a Class 2 permit modification to the LERF and 200 Area ETF permit sections, Operating Unit Group 3





Aerial view of the LERF and 200 Area ETF



Highlight of location for proposed modification



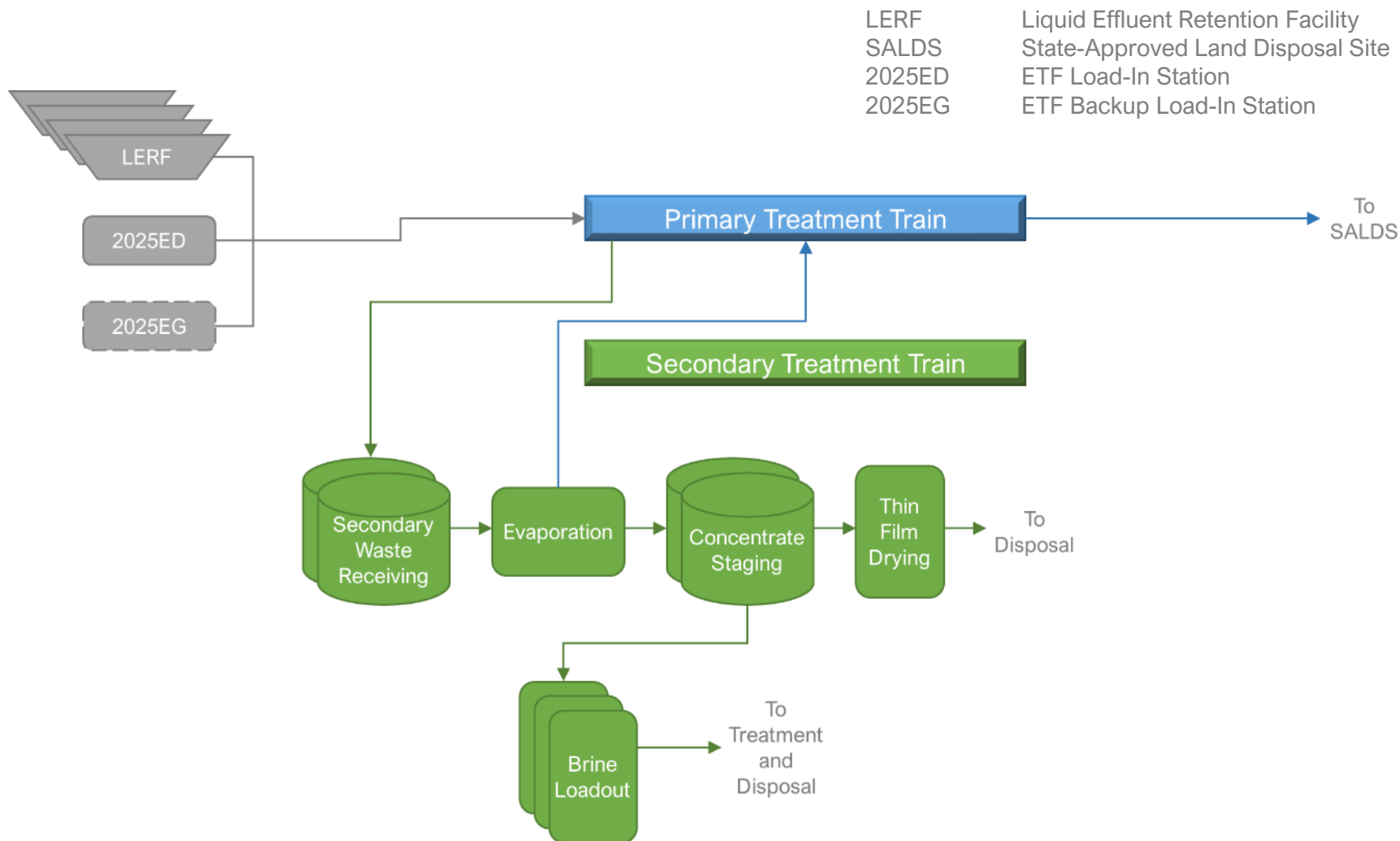
The 200 Area ETF treats liquid waste from Hanford Site sources. Operations will expand to include management of the WTP DFLAW effluent.



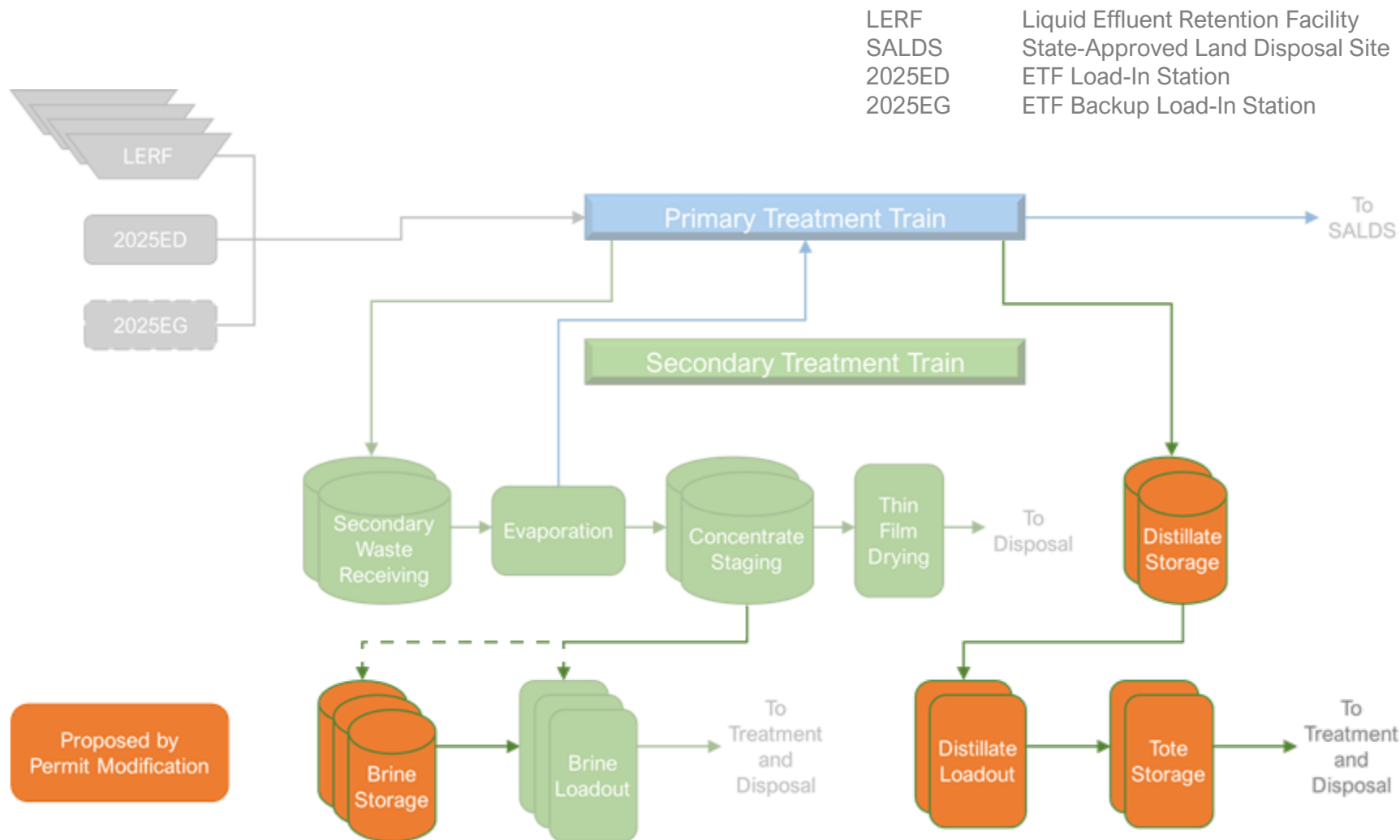
View of the secondary treatment train in the process area of the Effluent Treatment Facility



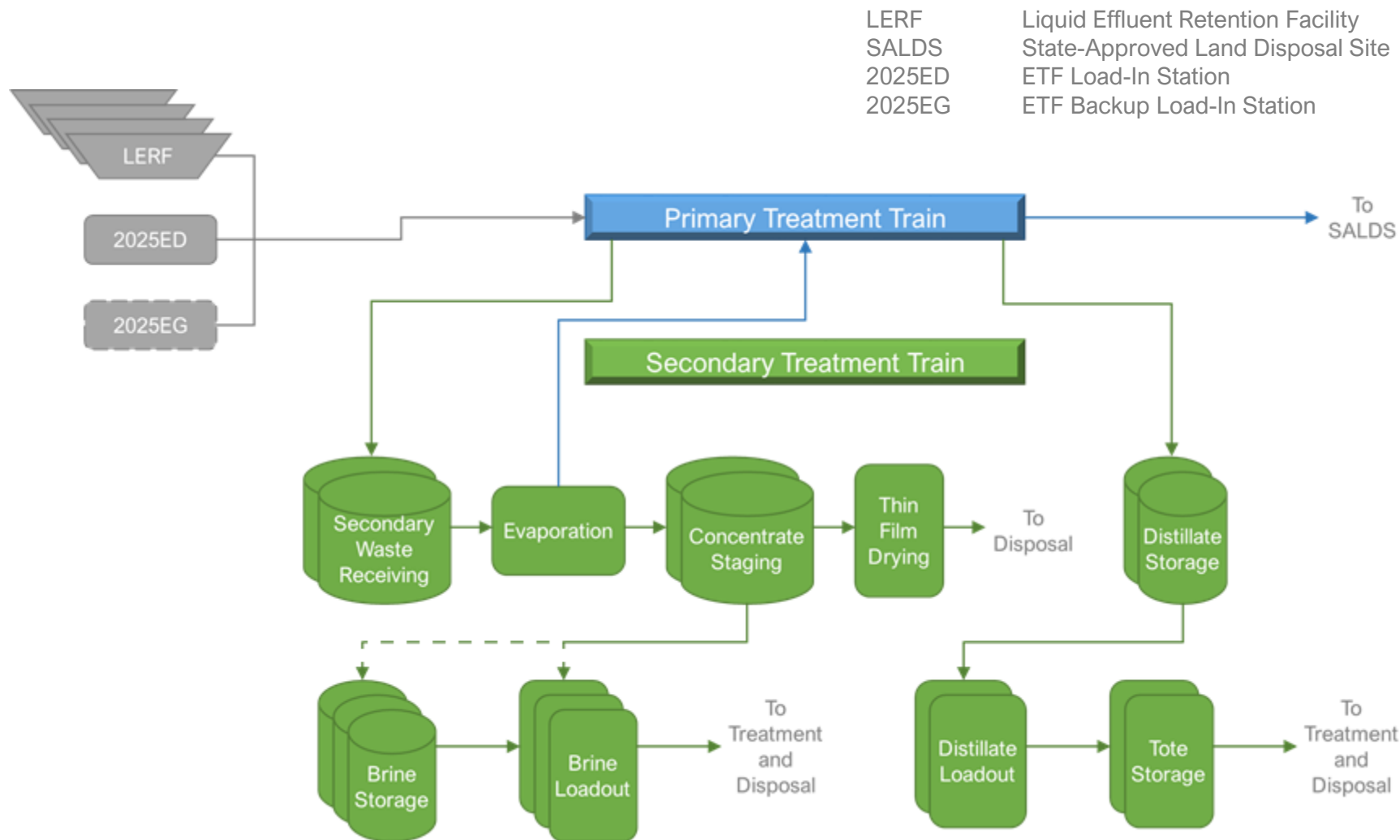
# Secondary Treatment Train: Before Proposed Modification



# Secondary Treatment Train: After Proposed Modification



# Secondary Treatment Train: After Proposed Modification (cont.)





The volume and composition of the WTP DFLAW effluent was reviewed and it was determined that changes to the ETF secondary treatment train were required to effectively manage the waste

- Installation of Brine Storage Tanks would provide additional storage capacity for secondary waste volumes and operational flexibility to transfer waste into totes
- Installation of Acetonitrile Distillate Storage Tanks would provide storage capacity for secondary waste after supplemental organics treatment

## Purpose of the Permit Modification: Overview (cont.)

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- Installation of an Acetonitrile Distillate Load-Out Facility would provide capability to transfer waste into totes for offsite treatment
- Installation of acetonitrile distillate tote storage areas would provide storage capacity prior to offsite treatment

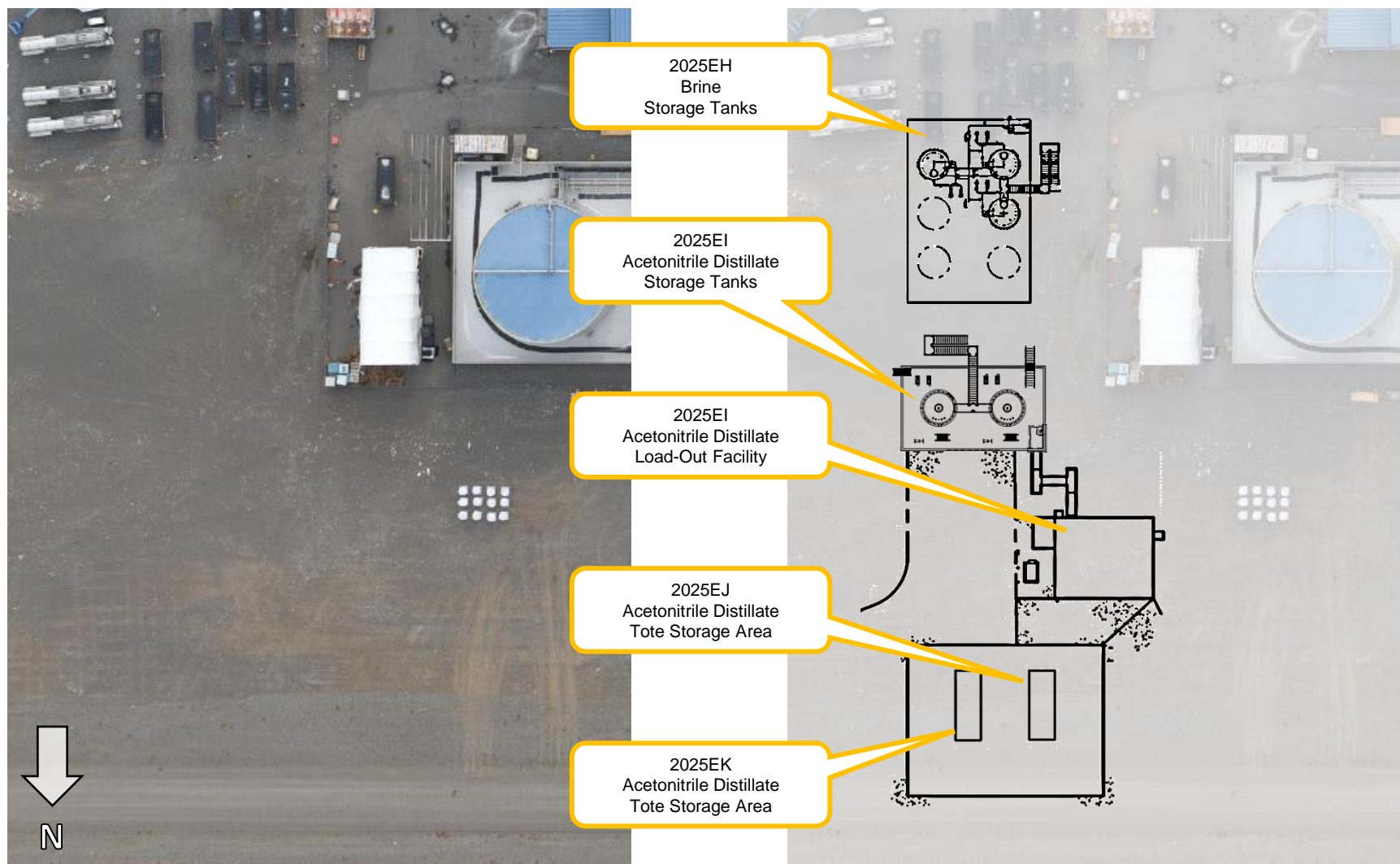
# Purpose of the Permit Modification: Before Proposed Modification



Aerial view of 200 Area ETF with proposed modification location



# Purpose of the Permit Modification: After Proposed Modification



Proposed modifications – Before

Proposed modifications – After

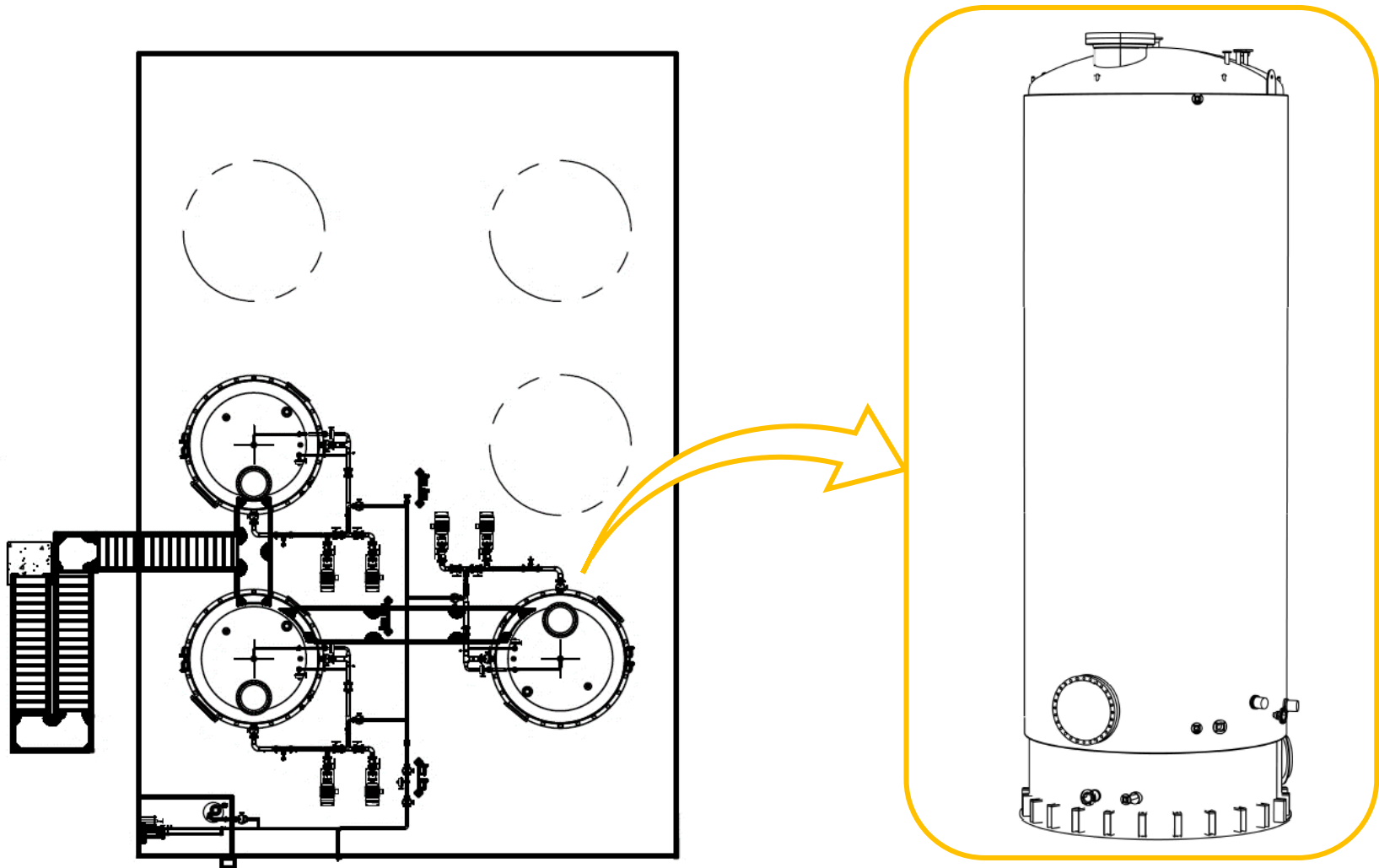
## Purpose of the Permit Modification: Brine Storage Tanks

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Installation of Brine Storage Tanks would provide additional storage capacity for secondary waste volumes and operational flexibility to transfer waste into totes

- Three proposed stainless-steel tanks
- Maximum tank capacity of 25,000 gallons each
- Located on a concrete pad (2025EH) exterior to the existing ETF building (2025E) sized for potential future expansion
- Secondary containment provided by floor and berm walls applied with special protective masonry coating
- Floor of secondary containment slopes to a low-point sump equipped with a leak detector

## Purpose of the Permit Modification: Brine Storage Tanks (cont.)



Schematic Layout of Proposed Brine Storage Tanks (with Example Tank Shown)



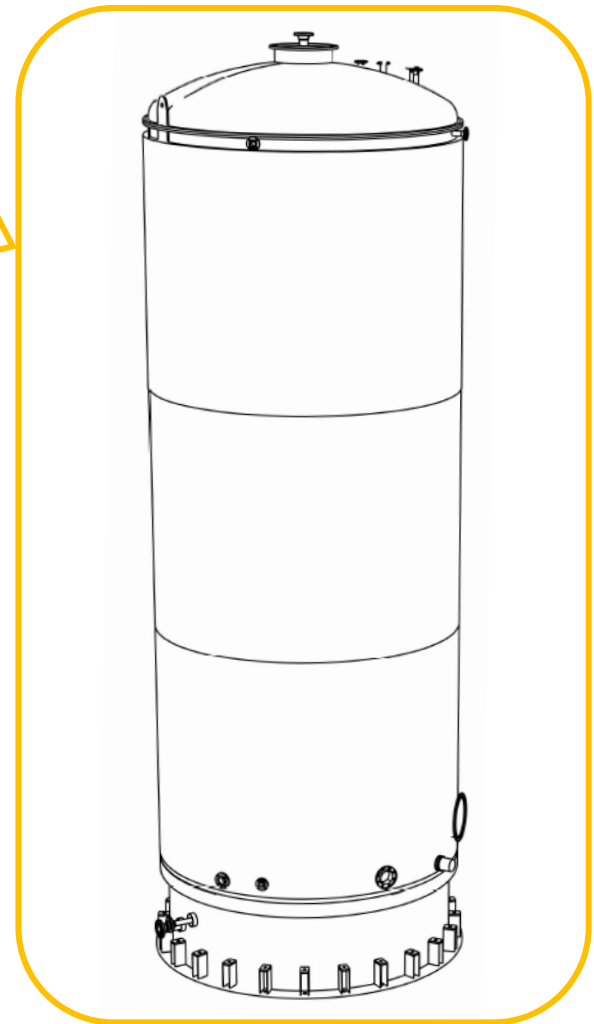
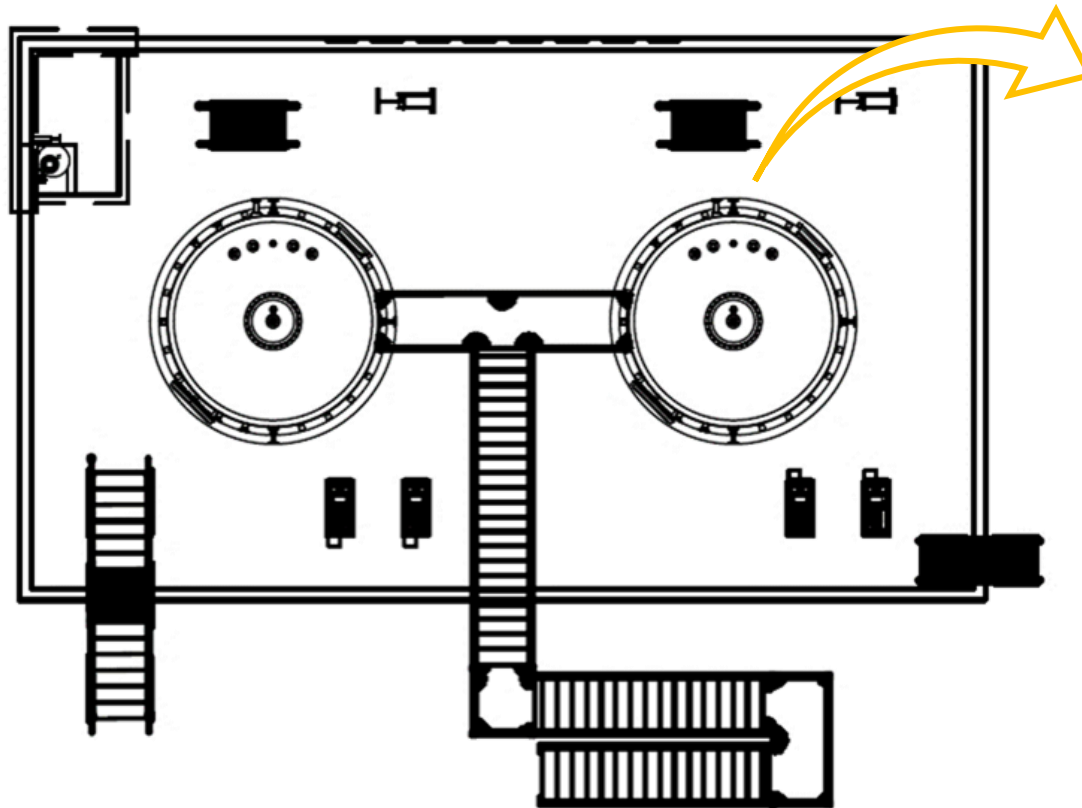
## Purpose of the Permit Modification: Distillate Storage Tanks

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Installation of Acetonitrile Distillate Storage Tanks would provide storage capacity for secondary waste after supplemental organics treatment

- Two proposed stainless-steel tanks
- Maximum tank capacity of 25,000 gallons each
- Located on a concrete pad (2025EI) exterior to the existing ETF building (2025E)
- Secondary containment provided by floor and berm walls applied with special protective masonry coating
- Floor of secondary containment slopes to a low-point sump equipped with a leak detector

# Purpose of the Permit Modification: Distillate Storage Tanks (cont.)



Schematic Layout of Proposed Distillate Storage Tanks (with Example Tank Shown)

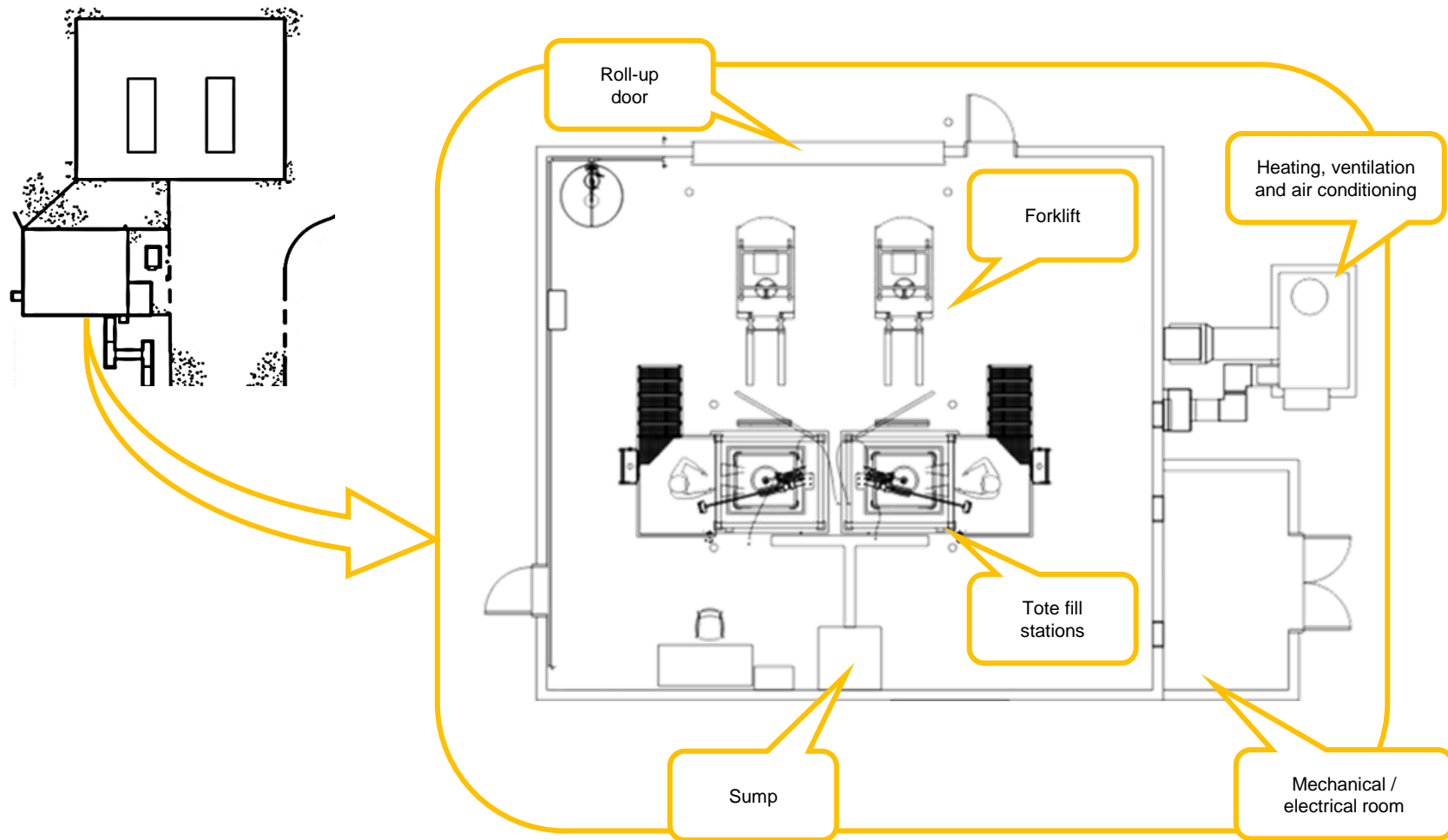
## Purpose of the Permit Modification: Distillate Load-Out Facility

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Installation of an Acetonitrile Distillate Load-Out Facility would provide capability to package totes for offsite treatment

- Waste would be transferred from the Acetonitrile Distillate Storage Tanks into totes at fill stations located in the Acetonitrile Distillate Load-Out Facility (2025EI)
- Two tote fill stations
- Forklift used to load 350-gallon stainless steel totes
- Secondary containment provided by floor applied with special protective masonry coating
- Floor of secondary containment slopes to a low-point sump equipped with a leak detector

# Purpose of the Permit Modification: Distillate Load-Out Facility (cont.)



Schematic Layout of Proposed Distillate Load-Out Facility (with Select Interior Systems Shown)



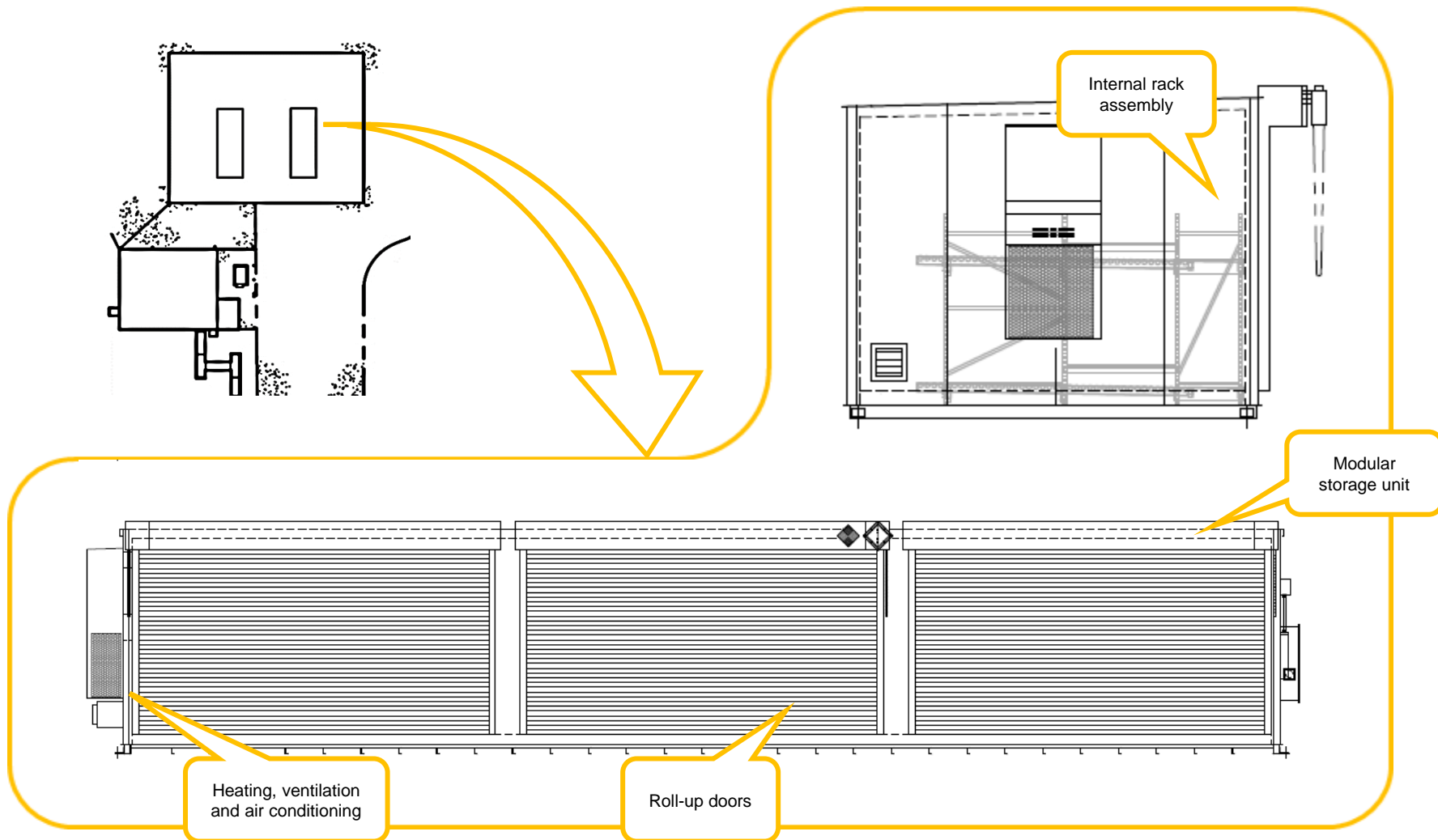
## Purpose of the Permit Modification: Distillate Tote Storage

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Installation of acetonitrile distillate tote storage areas would provide storage capacity prior to offsite treatment

- From the Acetonitrile Distillate Load-Out Facility, a forklift would be used to unload 350-gallon stainless steel totes into storage units
- Two adjacent tote storage locations – 2025EJ and 2025EK – placed on a concrete pad
- Totes will be stored in prefabricated modular storage units that are fully enclosed and capable of storing up to 24 totes each
- Both units are equipped with built-in secondary containment
- In the event of a leak, portable pumping system would be used to transfer waste from either storage unit

# Purpose of the Permit Modification: Distillate Tote Storage (Example)



Schematic Layout of Proposed Distillate Tote Storage (with Example Storage Unit Shown)

The modified addenda for the LERF and 200 Area ETF permit modification include the following:

- Addendum A, “Part A Form”
- Addendum B, “Waste Analysis Plan”
- Addendum C, “Process Information”
- Addendum F, “Preparedness and Prevention”
- Addendum I, “Inspection Requirements”
- Addendum J, “Contingency Plan”
- Unit-Specific Conditions

Refer to the corresponding Hanford Dangerous Waste Permit Change Notice for a full description of the proposed changes

LERF and 200 Area ETF Class 2 Permit Modification

60-day public comment period is open through June 4, 2022

Submit comments via mail or electronically (preferred) to the Washington State Department of Ecology at the address below:



Daina McFadden

Washington State Department of Ecology

3100 Port of Benton Boulevard

Richland, WA 99354

<http://nw.ecology.commentinput.com/?id=rMVa7>



# Questions?

The Hanford Reach  
White Bluffs Overlooking the Columbia River